GPS Tracker AT06 manual *Ver 1.0*

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Released

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1. Product Over View

AT03 is a GPS/GPRS based tracking device specially developed and designed for vehicle real-time tracking and fleet management.

AT03 has inbuilt GPS module to obtain accurate position data and utilizes its GSM capability to send the position data to a specified mobile phone or server base for tracking and fleet management. With internal memory, AT03 can store data when there is no GPRS connection or at a specified interval requested by the user.

2. Features and Specification

2.1 Features

? SMS and GPRS TCP/UDP Communication
?**Set vehicle ID/IMEI manually**
?**Time zone set up**
?**Date sync when no GPS signal**
?**set authorization calling number**
?**Two way conversation**
?**Temperature sensor support**
?Buzzer for over speed (optional)
? Track onDemand
? Show Location Directly on Mobile Phone
? Track by Time Interval
? Listen (Voice Wiretapping) (Optional)
? GSM Blind Area Memory
? Logging Capacity up to16000 GPRS data
? Inbuilt Motion Sensor for Power Saving
?Flexible time interval for ignition on/off
?GPS antenna drop alarm
? SOS Panic Button
? Geofencing Control
? Low Battery Alarm
? Speeding Alarm

? Power-cut Alarm

?Angle alarm message

?Distance alarm message

? Engine Cut (Stop Engine)

? I/O: 1 switch inputs,6 digital inputs, 4 digital outputs, 2 analog inputs.

2.2 Specification

Items	Specification
Power Supply	+12V - +24V / 1.5A
Backup Battery	900mAh
Normal power consumption	85mAh
Dimension	86mm*68mm*23mm
Weight	100g
Operating temperature	-20¡ to 60¡ C
Humidity	5% to 95% Non-condensing
Frequency	Quad Band GSM 850/900/1800/1900Mhz
GPS Module	Ublox Neo 6M
GPS Sensitivity	-159Db
GPS Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	20 channel all-in-view tracking
Position Accuracy	10 meters, 2D RMS
Velocity Accuracy	0.1 m/s
Time Accuracy	1 us synchronized to GPS time
Default datum	WGS-84
Reacquisition	0.1 sec., average
Hot start	N/A
Warm start	38 sec., average
Cold start	42 sec., average
Altitude Limit	18,000 meters (60,000 feet) max.
Velocity Limit	515 meters/second (1000 knots) max.
LED	3 LED lights to show GPS/GSM/Power status.
Flash Memory	16Mb
Button	1 SOS Button
Interface	1 switch inputs, 6 digital inputs, 4 digital outputs, 2 analog inputs.

2.3 GSM/GPS/Power Led identification

Red Led - Power	
Light 0.1s, dark 2.9s	No external power source
Light 1.5s, dark 1.5s	Inner battery charged fully
Always on	Inner battery charging by external power

Blue LED - GPS	
Dark	GPS module didn't power on
Light 0.1s, dark 2.9s	GPS fixed
Light 1.5s, dark1.5s	Searching GPS signal
GSM (Green LED)	
Dark always	GSM module didn't power on
Blinks fast 1 time, then dark 4s	GSM module initialize or GPRS connecting mode
Always on	Calling.
Light 0.1s, dark 2.9s	No SMS, no calling, no GPRS
Light 1.5s, dark 1.5s	GSM working (sending GPRS or SMS).

3. Installation guide & diagram

3.1 Setting parameter via SMS

This section is a guide to set the parameter to let GPS device work with GPRS, and send the position string to target server.

Parameters need to be set to let GPRS function working properly: APN, target IP and port, Time interval,

1> *000000,102,cmnet,,# /* set APN */

2> *000000,105,0, 66.160.134.220,10000# /* set IP&Port */

3> *000000,107,1# /* Enable GPRS */

4> *000000,200,30,1800# /* Set Time interval */

Note: This is the basic usage only to show the device is working properly.

If you don¡t have your own target server, you can host the trackers in our platform: www.mytracklink.com

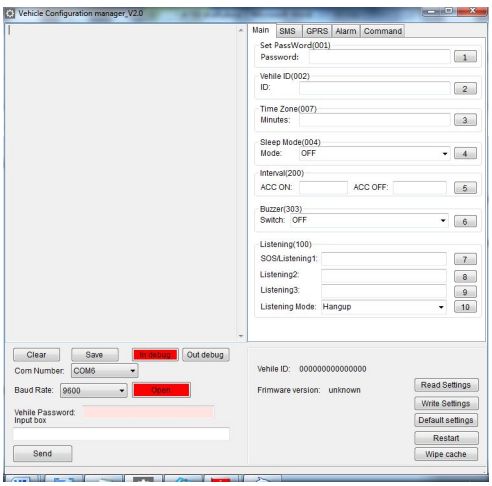
3.2 Setting parameter via vehicle management tools

Strongly recommend using this way to set up the device.

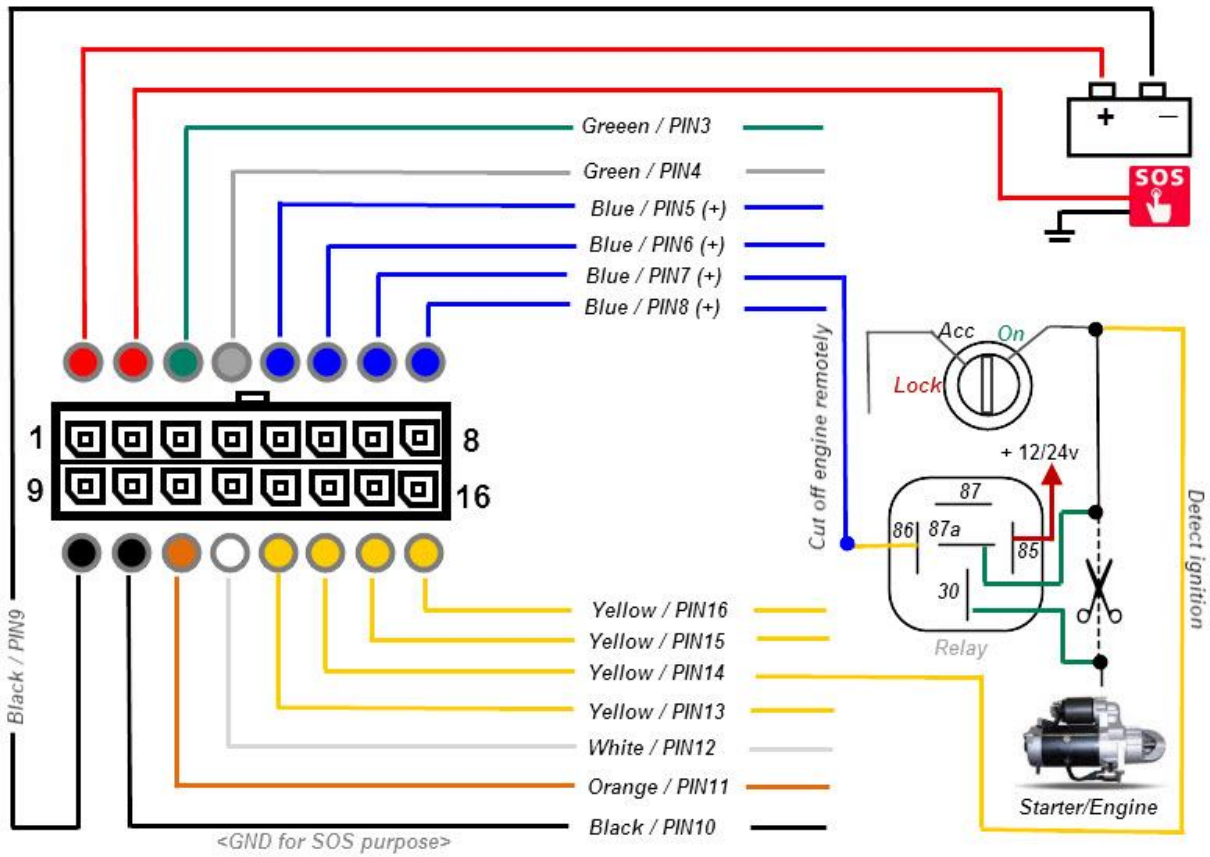
Things are required in this section: tracker AT03, Windows PC, vehicle management tools, configuration cables (*this is not a standard USB, please keep note*), drivers for configuration cables, local SIM card;

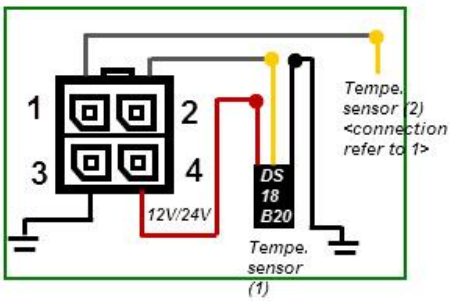
Note: All the parameter mentioned in this section can be sent by the SMS to the mobile number inside the tracker if you don't have these required stuffs.

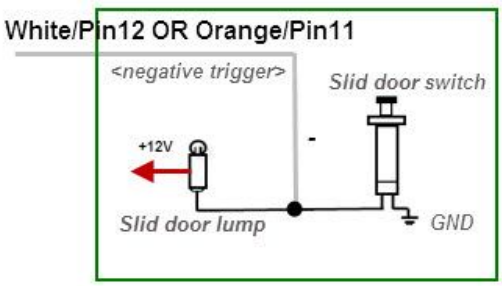
Note: For more detailed information for the configuration tools, please refer to User manual of Vehicle configuration manager.PDF

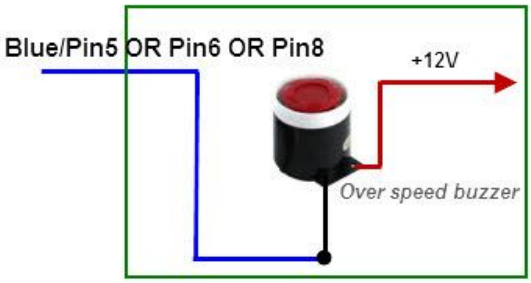


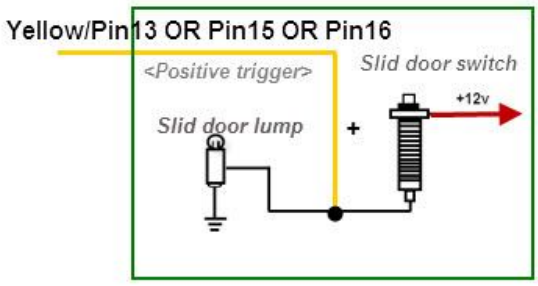
3.3 diagram of the device and IO port features

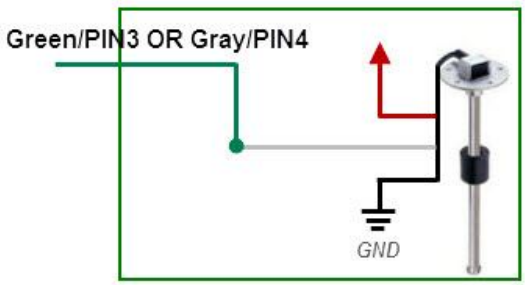


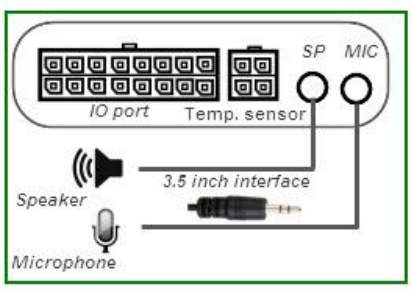












PIN	Application	Alarm	Inactive	active	Max	description
PIN 1: positive of power	Power supply	06 / 07	/	9v-36v	40V/130mAh	positive of external power: 9v¡ 36v
PIN 9: negative of power			/	/	/	06: external power disconnect alert ; 07: external power connect alert
PIN 2: switch input	SOS button	01	/	/	/	If SOS button pressed, it would send out SOS alarm data via GPRS, meanwhile send SOS sms to preset cellphone number. The preset cellphone number must be set by command: *$$$$$$,100,A,number1#
PIN 10: GND						
PIN 3: analog input	Fuel sensor	35 / 36	/	0-30v	30v	Analog Input to detect the voltage; commands for setting fuel data in percentage: *$$$$$$,404,State,EMPTY,FULL# and you can set the alert data for higher fuel data or lower fuel data: *$$$$$$,405,State,LOW,HIGH# . Alarm type: 35: fuel level higher alert; Alarm type: 36: fuel level lower alert.
PIN 4: analog input	Fuel sensor	37 / 38	/	0-30v	30v	Analog Input to detect the voltage; commands for setting fuel data in percentage: *$$$$$$,406,State,EMPTY,FULL# Alarm type: fuel level higher alert; Alarm type: fuel level lower alert.
PIN 5: digital output D	custom	/	Open drain	(GND)	45V/500mA	Connect with a relay to cut current circuit; Instruction Reference: *$$$$$$,300,D,0# disable digital output D; *$$$$$$,300,D,1# enable digital output D.
PIN 6: digital output C	custom	/	Open drain	(GND)	45V/500mA	Connect with a relay to lock / unlock car door; Instruction Reference: *$$$$$$,300,C,0# disable digital output C; *$$$$$$,300,C,1# enable digital output C.
PIN 7: digital output B	Engine immobilizer	17/18	Open drain	(GND)	45V/500mA	Connect with a relay to control the engine immobilizer: Instruction Reference: *$$$$$$,300,B,0# disable the engine immobilizer; *$$$$$$,300,B,1# enable the engine immobilizer.
PIN 8: digital output A	Beeper control	/	Open drain	(GND)	45V/500mA	Control the beeper beeping. The over speeding also would trigger the beeper working(you should also set *$$$$$$,303,Y# to enable beeping function for over speeding) Instruction Reference: *$$$$$$,300,A,0# disable beeper; *$$$$$$,300,A,1# enable beeper.
PIN 11: digital input 6	custom	28/29	Open drain	GND	45V	3 secs de-bounce time. Triggered by **negative**
PIN 12: digital input 5	custom	26/27	Open drain	GND	45V	3 secs de-bounce time. Triggered by **negative**
PIN 13: digital input 4	custom	24/25	Open drain or <3V	>3V	45V	3 secs de-bounce time. Triggered by **positive**
PIN 14: digital input 3	Engine detection	02/03	Open drain or <3V	>3V	45V	3 secs de-bounce time. Triggered by **positive**
PIN 15: digital input 2	Car door	19/20	Open drain	>3V	45V	3 secs de-bounce time. Triggered by **positive**

	detection		or <3V			
PIN 16: digital input 1	Trunk detection	12/13	Open drain or <3V	>3V	45V	3 secs de-bounce time. Triggered by **positive**
PIN 1	Temperature sensor	/				For Temperature sensor with DS18b20
PIN 2	Temperature sensor	/				For Temperature sensor with DS18b20
PIN 3	DC IN	/				
PIN 4	GND	/				

3.3.1 Connect with the power of the device

Power supply < 9V ¨ 36V>	
PIN1: +	Reference SMS command:
PIN9: -	N/A
GPRS message alert code: *<More detailed info, Please refer to our Protocol>*	
06: Power supply resume 07: Power supply disconnected	

3.3.2 Detect the ignition

High level detection	
PIN14	Reference SMS command:
Ignition circuit	N/A
GPRS message alert code: *<More detailed info, Please refer to our Protocol>*	
02: ignition start 03: ignition off	

3.3.2 Door Detection

Digital input - Positive trigger	
PIN15 <input1>	Reference SMS command:
door	N/A
GPRS message alert code: *<More detailed info, Please refer to our Protocol document>*	
Door open: 15 Door close: 16	

3.3.2 Door detection

Digital input ¨ Negative trigger	
PIN11,PIN12	Reference SMS command:
door	N/A

GPRS message alert code: *<More detailed info, Please refer to our Protocol document>*

3.3.2 Cut off ignition remotely

Digital output	
PIN7 <out B> Ignition	*000000,300,B,1# cut off engine <*send by SMS or GPRS*> *000000,300,B,0# resume engine
GPRS message alert code: *<More detailed info, Please refer to our Protocol document>*	
Engine/ignition cut: 17 Engine/ignition resume: 18	

3.3.3 Over-speed buzzer

Digital output	
PIN8 <out A> Buzzer	*$$$$$$,303,1# enable over speed buzzer *$$$$$$,303,0# disable over speed buzzer
GPRS message alert code: *<More detailed info, Please refer to our Protocol>*	
N/A	

3.3.4 Fuel sensor connection

Analog input	
PIN3 <Analog input> Fuel sensor	*000000,404,1,0,500# <Fuel show as percentage>
GPRS message alert code: *<More detailed info, Please refer to our Protocol>*	
N/A	

3.4 Firmware features setting up

Note: all these functions can be set by the vehicle management tools

3.4.1 Change the password

Password	
*000000,001,123456#	000000 is the factory default password 123456 is your new password
Note: all these functions can be set by the vehicle management tools & GPRS on our platform	

3.4.2 Set device ID

Device ID/IMEI	
*000000,002,1,123567890#	000000: password 123567890: new Device ID.

Note: all these functions can be set by the vehicle management tools

3.4.3 Set PIN code

PIN code	
*000000,001,123456#	000000: password 123456: PIN code
Note: all these functions can be set by the vehicle management tools & GPRS on our platform	

3.4.4 Set SMS Time area

Time zone	
*00000,007,1,60#	000000: password of device 60: time zone ; <1 hours for 60 minutes>
Note: all these functions can be set by the vehicle management tools & GPRS on our platform	

3.4.5 Set Authorization Call&SOS SMS Number

Call&SMS number	
*000000,100,A,13800138000# Set authorization A as 138001380000; *000000,100,B,13800138001# Set authorization B as 13800138000 *000000,100,C,13800138002# Set authorization C as 138001380002;	Set below number as SMS&Call number A number: 13800138000 B number: 13800138001 C number: 13800138002
Note: all these functions can be set by the vehicle management tools & GPRS on our platform	

4. SMS&GPRS command list

<Note: these commands can be also sent by GPRS in our platform>
<Note: No blank between each parameter in the command string>

Note: $$$$$$ is user¡s password and the default password is 000000. The tracker only accepts commands with the correct password. Commands with wrong password will be ignored.

Description	SMS Command	Example
Change Password	*$$$$$$,001,@@@@@@#	*000000,001,123456#
Remarks: $$$$$$ is old password @@@@@@ is new Password **e.g.** ***000000,001,123456#** The password will be 123456 after you set successfully.		

Set device ID	*$$$$$$,002,X,Y#	*000000,002,1,12356789#
Remarks: X=0, Disable setting device ID, use IMEI as a unique ID. X=1, Set device ID. Y: Max length is 15 digital; **e.g.** *000000,002,1,123456789# Set device ID as 123456789 Once you set the device ID as 123456789, IMEI will replace by 123456789 in the GPRS string **e.g.** *$$72**123456789**|AA1308180450060400037000000000002902927A70E27A0700000002.000000002237.6242N11404.7649E0539FE97* *NOTE: our platform www.mytracklink.com can¡t recognize customized ID. So please disable this setting if you are using our platform.*		
Set Tremble sensor Strength	*$$$$$$,003,Y#	*000000,003,5#
Remarks: Y=1 Y=[0,9]; **e.g.** *000000,003,5# set tremble sensor strength as 5;		
Set sleep mode	*$$$$$$,004,X#	*000000,004,0#
Remarks: X=0; Non-sleep, All data would be sent normally; X=1; Normal sleep mode; (Only Alarm GPRS data would be sent in this mode); X=2; Deep sleep mode; GPS module would shut down, No data will be sent out (Including Alarm message); e.g. *000000,004,0# Set Non-sleep mode. *<This is our recommendation setting>* *No trembles for 60 seconds, device gets into sleep mode. Trembles for 150 seconds, device wakes up from sleep mode.*		
Set PIN code	*$$$$$$,006,X,Y#	*000000,006,1,12345#
Remarks: X=0, Disable PIN function X=1, Enable PIN function Y=PIN code, Length no more than 5; **e.g.** *000000,006,1,12345# Set PIN code as 12345; *Note: SIM card number should be the same as 12345 for properly using.*		
Set Time area	*$$$$$$,007,X,Y#	*00000,007,1,60#
Remarks: X=0; (-) time zone; X=1; (+) time zone; Unit is minute in this command string. This command will only effect the time in the SMS <Excluding date in GPRS string.> **e.g.** *000000,007,1,480# Set time zone as GMT+8		
Set Authorization Call&SOS SMS Number	*$$$$$$,100,A,number1#	*000000,100,A,13800138000#

Remarks: Three authorization number can be set here:

*$$$$$$,100,A,number1#

*$$$$$$,100,B,number1#

*$$$$$$,100,C,number1#

e.g. *000000,100,A,13800138000# Set authorization A as 138001380000;

*000000,100,B,13800138001# Set authorization B as 138001380001;

*000000,100,C,13800138002# Set authorization C as 138001380002;

Note: Tracker will only pick up these numbers <in this example is 138001380000, 138001380001, 138001380002> after command set successfully. Phone number not in the list would be ignored by tracker.

Set Networking Band	*$$$$$$,101,X#	*000000,101,0#

Remark: X=0, Disable;

X=1, set networking band as 900/1800Mhz;

X=2, set networking band as 850/1900Mhz;

X=3, set networking band as 850/1900Mhz/900/1800Mhz;

e.g. *000000,101,0#

Set networking band rate as 900/1800Mhz;*<this is our recommendation setting>*

Set APN	*$$$$$$,102,X,Y,Z#	*000000,102,cmnet,,#

Remarks:

X: APN

Y: User name of APN

Z: Password of APN

e.g. *000000,102,cmnet,,#

set APN as cmnet (This network is transparent, so user name password is blank);

Note: if you are not sure about your APN, please call you cellular networking provider.

Set DNS server	*$$$$$$,103,DNS1,DNS2#	*000000,103,8.8.8.8,8.8.4.4#

Remark: DNS1&DNS2 is a IP address;

e.g. *000000,103,8.8.8.8,8.8.4.4#

set DNS1 server as 8.8.8.8 and DNS2 as 8.8.4.4 (these DNS server are Google¡s)

Note: These info are only required when you are going to use domain name (www.example.com) as target address to received data.

Set heart beat time interval	*$$$$$$,104,X#	*000000,104,5#

Remark: Set heart beat to keep GPRS connection always alive.

This setting use to avoid carrier disconnected the GPRS connection between server and tracker when there is no data activated.

e.g. *000000,104,5#

Set heart beat time interval as 5 seconds.

Note: The unit in this command is seconds.

Set target IP and port	*$$$$$$,105,X,IP/dns,port#	*000000,105,0,66.160.134.220,10000#

Remark:

X=0; set target server as IP address

X=1, Set target server as domain name *(www.mytracklink.com, this is our demo site for web tracking, sample test for free);*

e.g *000000,105,0, 66.160.134.220,10000#

set target IP as 105,0, 66.160.134.220, and port: 10000;

e.g. *000000,105,1, www.mytracklink.com,10000#

Set target server as www.mytracklink.com, and port: 10000;

Note: ($$$$$$,103,DNS1,DNS2#) this command need to be set if you are going to use domain name to receive the data;*

Enable GPRS of device	*$$$$$$,107,X#	*000000,107,1#

Remark: X=0; disable GPRS function;

X=1; enable GPRS function and using TCP protocol

X=2; UDP

e.g. *000000,107,1#

Note: This command is required to enable when you are going to tracking via GPRS;

Set Tracking interval	*$$$$$$,200,X,Y#	*000000,200,30,1800#

Remark:

X: time interval when ignition on;

Y: time interval when ignition off;

e.g. *000000,200,30,1800#

set time interval is 30s when ignition on and 1800s when ignition off;

Note: this function should set YELLOW/PIN14(digital input3) as ignition detection.

Buzzer	*$$$$$$,300,A,X#	*000000,300,A,1#

Remark: X=0, Buzzer bee.

X=1, Buzzer silence.

e.g. *000000,300,A,1#

Over speed Buzzer bee

Cut off engine	*$$$$$$,300,B,X#	*000000,300,B,1#

Remark: X=0, resume engine

X=1, cut off engine

e.g. *000000,300,B,1#

cut off engine remotely (Command send via SMS or in our GPRS server);

Note: Relay is required to install before you are going to use this function;

Cut off engine	*$$$$$$,300,C,X#	*000000,300,C,1#

Remark: X=0, resume

X=1, cut off

e.g. *000000,300,C,1#

cut off oil/circuit remotely (Command send via SMS or in our GPRS server);

Note: Relay is required to install before you are going to use this function;

Cut off engine	*$$$$$$,300,D,X#	*000000,300,D,1#

Remark: X=0, resume
X=1, cut off

e.g. *000000,300,D,1#

cut off oil/circuit remotely (Command send via SMS or in our GPRS server);

Note: Relay is required to install before you are going to use this function;

Enable SMS	*$$$$$$,301,X,Y#	*000000,301,A,0#

Remark: X=A; Enable/disable SMS;
X=B; enable/disable SOS SMS;
X=F; enable/disable phone call;

e.g. *000000,301,A,1# enable SMS *<Strongly recommendation to enable it>*
*000000,301,B,1# enable SOS SMS
*000000,301,F,1# enable phone call

Enable/disable over speed buzzer	*$$$$$$,303,X#	*000000,303,1#

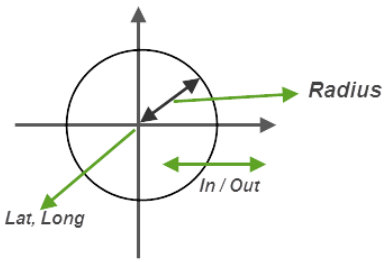
Remark: X=1, enable over speed buzzer;
X=0; disable over speed buzzer;

e.g. *000000,303,1#
enable over-speed buzzer

Note: You need an optional accessory ¨ Buzzer for this feature.

Set GEO fence	*$$$$$$,400,Lat,Long,Radius,AlarmMode#	*000000,400, +2232.5859,+11403.4720,100,3#

Remark:
Lat,Long this coordination is the center of the circuit
Radius: Radius of this GEO fence area. Unit is meter;
Alarmmode =0, disable GEO fence;
=1, In GEO alarm;
=2, Out GEO alarm;
=3, In/out GEO alarm;



e.g. *000000,400,+22.426074,+113.987731,100,3#
If vehicle run in or out, this GEO hot spot alarm will be trigger.
(these coordinates are degree format
Google map coordinate also indicate as degree format).

Note: Suggest to use our online GEO fence function <polygon, circle, rectangle supported, draw on the map directly, no need to put coordinate.>

Set over speed alarm	*$$$$$$,401,Y#	*000000,401,120#

Remarks:
Y=0; disable over speed alarm;
Y=[0,999]km/s;

e.g. *000000,401,120#

set over speed alarm speed as 120km/h

Set angle alarm	*$$$$$$,402,Y#	*000000,402,60#

Remarks: Y=0; disable angle alarm; Y=[30,259]/degree; **e.g.** *000000,402,60# Set angle alarm as 60 degree, once vehicle turns 60 degree, a GPRS alarm message sends to server.		
Set distance alarm	*$$$$$$,403,Y#	*00000,403,100#
Remarks: Y=0; disable distance alarm; Y=[0,999]/degree; **e.g.** *000000,403,100# If tracker moves 100m, a GPRS alarm message will send to server.		
Set fuel sensor	*$$$$$$,404,X,Y,Z#	*000000,404,1,0,5#
Remark: X=0, disable X=1, enable Y: voltage when tank is empty; Z: voltage when tank is full; **e.g.** *000000,404,1,0,5# Set voltage 0V when tank is empty and 5V when tank is full. *Note: If you are using a fuel sensor from us, this parameter would be depends on the voltage of the fuel sensor. <floater at the top means tank full>*		
Restart the device	*$$$$$$,990#	*000000,990#
Restart device		
Reset	*$$$$$$,991#	*000000,991#
Initial the device (exclude IP and APN)		
Request device version	*$$$$$$,992#	*000000,992#
Request device firmware version		
Request a position	*$$$$$$,993#	*000000,993#
Request a position		
Request a position（GPRS）	*$$$$$$,994#	*000000,994#
Request a position <device will send a GPRS out to server, normally this command was send from the tracking platform>		
Clear the buffer/Memory	*$$$$$$,995#	*000000,995#
Clear the buffer in device flash		
Request a position link (SMS)	*$$$$$$,996#	*000000,996#
Request a position link via SMS		

----------END----------